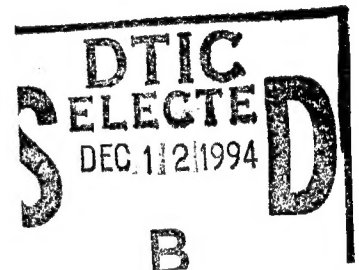




U.S. Army Corps of Engineers  
Water Resources Support Center  
Institute for Water Resources

# PC - FINPACK

VERSION 1.010



## DOCUMENTATION REPORT



MARCH 1993

IWR REPORT 93-R-7

**REPORT DOCUMENTATION PAGE**

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The overall purpose of this report is to provide an overview of PC-FINPACK which is a computerized financial analysis and simulation model for water supply and waste water disposal facilities. The rationale underlying the use of financial simulation models is often the assumption that firms' managers wish to maintain a given ratio of debt to equity in the firm's balance sheet. The major postulate of the PC-FINPACK rationale (an extension of the aforesaid debt-to-equity rationale) is that the constancy of the ratio of Total Operating Revenues to Total Assets is an appropriate basis for financial simulation analysis of the accounting data for water supply and waste water disposal facilities. Development of PC-FINPACK was funded by the Partners for Environmental Progress (PEP) Program, and implemented by the U.S. Army Engineer Institute for Water Resources to support Corps analysts in their conduct of financial analyses of projects that public sponsors are preliminarily considering for privatization.

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# N O T I C E

The development of PC-FINPACK has out-paced this March 1993 version of the PC-FINPACK Documentation Report. Users are hereby advised, therefore, that the information contained herein is still applicable to the operations of PC-FINPACK although some cell addresses may a few rows away from their true locations. Users will find that directions, explanations, and helpful comments are distributed throughout the PC-FINPACK spreadsheets. Thus, the IWR Project Manager for PC-FINPACK believes that the cell-location deficiencies do not warrant postponement of the December 1993 delivery of PC-FINPACK to the PEP Program Managers, until publication of an updated Documentation Report.

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# PC-FINPACK

## PURPOSE AND RATIONALE

Development of PC-FINPACK was funded by the Partners for Environmental Progress (PEP) Program, and implemented by the U.S. Army Engineer Institute for Water Resources. The PEP Program of the U.S. Army Corps of Engineers is designed to provide cost-shared planning assistance to communities involved in the planning required to satisfy their water supply and waste water disposal needs. PC-FINPACK is designed to support Corps of Engineers analysts in their conduct of computer-aided financial analyses of water supply projects and waste water disposal projects that public sponsors are considering for privatization.

PC-FINPACK is a computerized financial analysis and simulation model for water supply and waste water disposal facilities. Generally, the overriding rationale underlying the use of financial simulation models is the assumption that the firm's managers wish to maintain a given ratio of debt to equity in the firm's balance sheet. The rationale underlying the development of the PC-FINPACK Model is an extension of the aforesaid generally-applied rationale; axiomatically, therefore, the rationale underlying the operation of PC-FINPACK is the major postulate that the constancy of the ratio of Total Operating Revenues to Total Assets is an appropriate basis for financial simulation analysis of the accounting data for water supply and waste water disposal facilities.

PC-FINPACK uses its input data on water usage to calculate a specific firm's operating revenues--then, the predominant multiplier (the ratio of Total Assets to Total Operating Revenues) is used in conjunction with other multipliers to simulate balance sheets and income statements for each of the five years shown in the PC-FINPACK spreadsheet. In other words, for a specific firm (facility), PC-FINPACK enables its users to simulate balance sheets, income statements, and other data which are in conformity with comparable data for the typical firm in the specific facility's class.

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<sup>1</sup> Prof. Simon Benninga, in the 1990 printing of his book, Numerical Techniques in Finance, revisits J. M. Warren's and J. P. Shelton's December 1971 Journal of Finance article in which they showed that certain balance-sheet relations may be determined from the simultaneous solution of several linear equations. Benninga made the point that, "... in the Warren-Shelton model the firm solves a problem that involves some twenty simultaneous equations in as many unknowns." (Benninga, 1990, p. 6)

The basic and essential input data, for PC-FINPACK, are a specific facility's:

- number of hookups designated by user-class,
- rates of annual growth of major activities-and-items, and
- multipliers which are representatives of the major accounting-and-financial (A&F) relationships for specific categories of facilities.

The data on number of hook-ups may be based on physical counts or projected usage. The PC-FINPACK growth rates and A&F multipliers were derived from analyses of the balance sheets and income statements of field-survey-determined categories of many financially sufficient privately- and public-owned water supply and waste water disposal facilities. The PC-FINPACK spreadsheet was designed to accept the manual loading of the input data.

#### HOW TO USE PC-FINPACK SPREADSHEETS

The input data for PC-FINPACK are contained in one of the spreadsheet files on the computer disks that were provided. First, the user should select the spreadsheet file that meets her/his requirements. Currently, only three population-categories (small, medium, and large) are available. Users must manually select the appropriate file from the disks provided at this time--WatSupA to WatSupRR, based upon size, region, municipal or private, and water supply or waste water disposal categories. The major things to remember are:

- Users should go directly to help-screen A 1.10 and review the default values. Enter the number of hook-ups expected into cells E40-E42, usage per hook-up into cells I40-I42, and rate per 1,000 gallons into cells C45-C47.
- Additional changes can be made to the income statement and balance sheet in column E if the default values are not appropriate. Save your default file under a new file name before changing it.
- Users can view help-screens:  
  
via the spreadsheet by pressing the Tab-key twice, or pressing the Alt-key and H-key simultaneously. Users should press Shift-key and Tab-key twice to return to column A, and use the page-up or -down keys to find the lines they want.
- Users are advised to telephone Dr. Edward M. Pierce at (305) 472-1048 or (305) 475-7684, if they have problems, or need information on special considerations such as treatment or capital investment multipliers or problems with the model.

## HOW TO CHANGE THE DEFAULT MULTIPLIERS

The predominant ratio (76737/19820), located in cell E600 and also known as the critical multiplier, was determined by analysis of several types of water utilities. This ratio is the essential control factor for calculating the "Total Assets" for the first year (cell E148), which is derived from the formula: "(76737/19820) multiplied by Total Operating Revenues in the first year, shown in cell E71. Therefore, "Computed Total Assets" equals 3.87170 multiplied by E71.

The multipliers in the spreadsheets may be changed by retrieving the spreadsheet, locating the cell(s) to be changed in the "LOOK-UP TABLE" at cell address A671 in the spreadsheet, going to cell(s) to be changed, manually making the change(s), and then saving the spreadsheet.

## HELP-SCREENS EXCERPTED FROM PC-FINPACK SPREADSHEETS

● 1.7 Multipliers, lines 36, 37: The inflation rate and real growth rate are added to 1.00 to obtain the "relative." The relatives are multiplied together  $(1+inf)*(1+r)$  to obtain 1.00 plus your multiplier (cell I37). All default values are operative throughout the spreadsheet and model. You may change an individual multiplier by entering a new value in the multiplier column. Note that all lines reflect inflated values.

Revenue Computations, lines 39-48: Do not change default values. Enter any adjustments in the revised columns for rates, number of customers (Hook-ups), and usage per customer. If a gross revenue figure is all that is available, enter it in cell M45.

Press F9 (Function key F9) and the program will compute all of the forms based upon your revised numbers.

● 1.8 Special Considerations, lines 50-52: Tentative multipliers for special water treatment and unusual plant and equipment requirements (water towers, etc.) are as follows:

Air Stripping	\$ 300	per 1,000,000	gallons
GAC Absorption	\$ 500	"	"
Direct Filtering	\$ 1,000	"	"
Conv Treatment	\$ 2,250	"	"
Steam Stripping	\$ 850	"	"

Presence of arsenic, barium, selenium, or coliform Bacteria requires special treatment. Contact Mr. Bill Clark at IWR (703) 355-2240.

● 1.8.1 Unusual transportation distances or pumping requirements may increase plant and equipment costs, as well as operating costs. No data are available to provide adjustments for these conditions at the present time.

Item	Norm	Multiplier	Remarks
Pipelines			
Canals			
Water Towers			
Distribution Net			
EPA Modifications			

● 1.9 Financing Costs, lines 55-59: Financing costs are carried to the weighted cost of capital (WCC) section (line 422). Default values are 10% cost of debt (BT), 9% cost of preferred stock, and 11.6% cost of equity (Beta of 0.80, Rm of 0.13, and RFR of 0.6). The WCC is used to compute present values (line 412) and uniform annual equivalent cost (line 416).

● 2.1 Revenues, lines 64-69: Revenues are computed for the first year using inputs for usage per customer, number of customers (Hook-Ups), and rate per 1,000 gallons. For large systems, numbers of gallons are divided by 1,000,000. Revenues are summed by component to arrive at totals, and are multiplied by the multiplier to obtain revenues for three future years. Revenues are multiplied by the multiplier raised to the sixth power to arrive at revenues in the tenth year.

● 2.2 Expenses, lines 73-83: Operating Expenses increase by use of the multiplier, and are considered as variable expenses. The so-called "fixed expenses" are not tied to operating levels, but are 3% likely to vary from year to year. The model does not increase fixed expenses over time, but you may increase them by changing the multiplier. The model aggregates fixed expenses, but you may enter values for each expense-category, separately. Neither depreciation nor amortization are increased between years; the model assumes depreciation and amortization amounts are reinvested in the capital accounts, so that plant and equipment accounts remain constant over the years. You may change the entries on lines 140-143 if you have better forecasts for new construction and major maintenance. Liabilities and retained earnings columns may have to be adjusted.

Operating Earnings are computed by subtracting operating expenses, including depreciation and amortization, from operating revenues.

● 2.3 Non-Operating-Revenues-and-Expenses, -lines 99-104: (Temporary income from restricted assets should be backed out of the income

statement if it is large enough to distort results.) Interest income results from investing normally available assets, to include excess cash. If cash builds up in the model due to excess retained earnings, it is not used to generate additional investment income. You may show additional income on line 99.

Interest expense is obtained by multiplying debt outstanding (cells E155+E156, E170, and E171) by current interest rate (cells E55-E59).

● 2.4 Net Profit and Retained Earnings: Earnings are summed, tax rate (40% in cell C108) is applied, and profit after tax is computed.

Dividends and adjustments are subtracted and retained earnings are posted to the next year's balance sheet (cell G176).

● 3.1 Current Assets, lines 123-131: Cash line is carried forward from line 400 (Cash, End of Year) of the current year. Other lines for the first year are computed by multiplying the total asset figure (cell E148) by the default fraction. Follow-on years are computed by multiplying the current year value by the multiplier. First year values may be adjusted to reflect your experience by first adjusting the total asset figure, and by second recalculating the decimal multiplier for each line item of the balance sheet. These should sum to 1.0. Third, enter cells E124-E146 of the asset side of the balance sheet and change the fraction used to multiply cell E148. Check your results against the normalized balance sheet.

● 3.2 Restricted Assets, lines 133-137: Restricted assets include monies committed for special purposes such as expanded facilities. The default values include a normal amount of such monies. Theoretically, restricted funds should be cleansed from the income statement and the balance sheet before the financial analysis is completed. If restricted assets are more than 5 to 10% percent of total assets, we recommend that their effect be subtracted from both the balance sheet (lines 133-137) and income statement (line 99).

\* 3.3 Fixed Assets, lines 139-145: Fixed assets are held constant through the out-years, assuming that depreciation and amortization are reinvested in plant and equipment. This assumption has the effect of zeroing out the depreciation line and amortization lines. The multiplier is held at 1.00 for fixed assets.

Construction in progress is considered as financed from restricted assets, and is backed out of both assets and liabilities. Note that current depreciation and amortization are being reinvested, and recorded under plant and equipment (line 140).

● 3.4 Total Assets, line 148: The total asset line is a key line in that other assets are computed as a percentage of total assets. The ratio of assets to revenues is computed for the average utility of your size and type. Your revenues (computed according to your number of customers, your usage per customer, and your rates) are multiplied by the ratio of assets to revenues (about 3.8) to obtain the total asset value in cell E148.

Line 149, shows the difference between assets and liabilities plus net worth. On line 150, the asset lines in the balance sheet are totaled to provide a check against the computed asset value. If the multipliers add to one, line 150 should be within one percent of line 148. Differences should be less than two percent, except for column M, which is a rough approximation for a six-year interval.

Asset totals for the out-years are simply the total of all assets, as in any balance sheet. Line 149 is the difference between assets and liabilities, and provides a check of the internal consistency of the program as it is applied to your situation. If errors exceed five percent, consult the trouble shooting section of the manual or call 305-472-1048, Dr. Edward Pierce.

● 3.5 Current Liabilities, lines 152-160: Current liabilities for the first year are computed as a fraction of total assets. The multiplier is used to obtain out-year values except for the current portion of long-term debt, which is computed by multiplying the remaining debt by the first year percentage. You may prefer to hold this number constant by using a 1.0 multiplier. Note that a reduction in debt is a negative cash flow (line 384). Increases in liabilities have the effect of positive cash flows--both will affect the cash account.

Payable from Restricted Assets, line 162-164: These lines are normally zeroed out, but may be used if you include restricted assets in the balance sheet and income statement.

Advances from Other Funds, line 167: Use if you have liabilities due to advance payments from other funds.

● 3.6 Long-Term Liabilities, lines 169-171: Intermediate-term and long-term debt are computed for the first year as a fraction of total assets (line E148). The out-year figures are the first year figures less the previous year's current portion, long-term debt (line 156).

● 3.7 Equity, lines 172-178: Preferred stock, common stock, paid in surplus and retained earnings make up the equity accounts in the business firm. Preferred stock is considered equity by law, and dividends are paid after income is taxed--as opposed to debt where

interest is paid before income is taxed. Preferred dividends are fixed for the life of the stock, and are deducted from net income (line 218).

Common stock, paid in surplus, and retained earnings are all treated as one account in computing cost of equity. The municipality is paid dividends on contributed capital (equity) which is equivalent to common stock plus paid-in-surplus. Dividends grow as equity grows. Equity is totaled, and liabilities and equity are added together to arrive at line 180, which should equal line 148 if the balance is to balance. In this model, we do not attempt to force this balance, but we note instead the differences between assets and liabilities (line 149) to obtain a check on the model's internal consistency.

● 4.1 Normalized Income Statement, lines 184-223: Normalized income statements are developed by dividing each line by total revenues. The decimals should be the multipliers used to generate your first year income statement (decimal multiplied by \$E\$71). Column F, line 202, contains the total of the expense column decimals. This total plus the operating earnings (E204) should equal 1.000.

Non-Operating revenues are computed in the same manner, but are not additive to the totals. Interest income is shown as a negative cash inflow.

Profits after tax, dividends, and adjustments complete the normalized income statement.

● 4.2 Normalized Balance Sheet, lines 242-300: Each line of the balance sheet is divided by total assets to obtain the decimals. The asset lines are summed, and should total to 1.000 (line 257). Errors of less than 0.02 in column M are considered acceptable.

Liabilities and equity accounts are computed in the same manner, and should total to 1.000 (line 300). Again, errors of less than two percent in column M are considered acceptable.

● 4.3 Liquidity Ratios, lines 304-309: Liquidity ratios tell us our ability to pay our current bills. The most stringent is the acid test ratio, which contains only cash and short-term securities (near-cash) in the numerator, and current liabilities in the denominator. An adequate ratio is 0.10 for a large firm, 0.50 for a small firm. Liquidity in the sample firm increases as the cash account grows.

Quick ratios include receivables in the numerator, and current ratios include all current assets in the numerator. As a rule-of-thumb, the quick ratio should be about 1 to 1, and the current ratio about 2 to 1, may be lower for utilities.

● 4.4 Activity Ratios, lines 312-322: Activity ratios look at the turnovers of accounts receivable and inventory (lines 312, 314). Days outstanding refers to receivables and tells us the length of time needed to collect the average account receivable. Thirty to forty-five days would appear to be adequate.

Asset turnover is an indication of the efficient use of assets. Although the normal for a manufacturing concern is about 1-to-1, utilities are heavy in assets, and have correspondingly low turnovers. Our averages are from 0.16 to 0.30. The 1.000/asset turnover is the key multiplier used to obtain total assets in cell E148.

A number of special ratios are computed in the industry. Additional ratios may be added on lines 461 to 500.

● 4.5 Coverage Ratios, lines 317-320: Coverage ratios tell us how well protected our interest and other fixed payments are secured, or covered. Interest coverage is computed by adding interest paid to earnings before taxes, and dividing the result by interest paid. Coverage should be twice interest, as a minimum.

Interest and dividend coverage is an indication of how well our dividends are covered. Dividends are paid after taxes, and must be corrected to a before tax figure by dividing the total by (1.000 minus the tax rate).

Fixed finance payment coverage is computed the same way, and should include principal payments on debt (corrected for taxes) and other fixed finance charges (long-term leases) if data are available.

● 4.6 Leverage Ratios, lines 321,322: Leverage ratios developed by dividing debt by total assets, or debt by equity. If a firm is well into the black on its income statement, it can increase its return on equity by increasing its debt ratio. The trade-off is that the firm takes on a higher risk that it will not be able to pay the increased interest and other fixed financing charges in the future.

Utilities, such as water supply and waste water treatment plants typically have high debt to equity ratios since their income is fixed, and there is little danger that they will not be able to meet these financial obligations.

Even privatized utilities are able to carry relatively high debt ratios.

● 4.7 Profitability, lines 324-328: Profitability measures include margin, or net profit over revenues, return on assets, and return on equity. The equity in a municipally-owned firm is imputed as the contributed capital plus retained earnings.

The guidelines for return on equity may be computed by using the formula shown on line 434 (default value of 0.116). This equity return is averaged with debt interest rates using a weighted average technique. Firms that earn this overall rate of return are able to pay interest on their debt and also reward equity holders with dividends. In the model, dividends provide about 40 percent of stockholder return, and growth is expected to provide about 60 percent. Firms that earn this target rate of return will show a zero net present value for cash flows when the weighted cost of capital is used as a discount factor; the internal rate of return will equal the WCC (cell G429).

Municipalities may be subsidizing the utility if the NPV is negative, and may be subsidizing other operations if the NPV is positive.

● 4.8 Growth ratios, lines 330-334: Two factors influence growth of revenues, real growth in operations, and inflation. Real growth increases at about two percent for a mature utility, and the default value for inflation is 3 percent. See help frame 1.9 for the computations to integrate these values into the model.

Cash flow, earnings, and dividend growth are geometric averages of the growth over the ten year period.

● 4.9 Operating Statistics, lines 337-338: Data on operating statistics are not available at this time.

● 5.1 Operating Cash Flows, lines 364-367: Money received from customers is taken from line 71; cash payments from line 93 after, adding back depreciation and amortization.

An increase in current assets (less cash in this case) or a decrease in current liabilities is a use of cash (lines 369, 370). Tax payments are also negative cash flows and are deleted from operating cash flows, to give a net operating cash flow (line 372).

● 5.2 Other Cash Flows, lines 374-394: Cash flows from non-capital accounts are netted out, with "advances to" as negative and "payments from" as positive.

The retirement of long-term (LT) debt is a negative cash flow, and may include payments out of restricted assets.

Interest on LT debt and dividends are negative cash flows, but may be offset by investment interest. Purchases of securities is a negative cash flow if the securities are listed as an increase in another asset account; sales of securities is a positive cash flow.

● 5.3 Summary of Cash Flows, lines 396-400: Net cash flow is the algebraic sum of lines 372, 378, 390, 393, and 394. Net cash flow is added to cash available at the beginning of the year to obtain cash available at the end of the year. This value should be carried up to the balance sheet for the year as the cash balance.

● 6.1 Payback, lines 403-406: Payback computations are based upon net cash flow (line 396), lagged one year, subtracted from original capital invested (debt plus equity).

Payback is very slow for most utilities due to the heavy investment and regulated environment that limits returns; thus, payback is not a good measure of performance for utilities.

We have artificially assumed an infinite life, and amortized the cash flows beyond year ten at the cost of capital (cell G429) to show that payback of all capital does occur (as signified by the negative number in cell K406). On the average, over two-thirds of the investment is paid back at the end of year ten (K406/F404).

The second payback computation is based upon payback of contributed capital (equity), as is normal in financial analysis.

● 6.2 Internal Rate of Return, lines 409, 410: The amortized value of cash flows for years ten and beyond are included in cell K409 to arrive at a fair IRR based upon equity investment.

This internal rate of return is on original equity (contributed capital).

● 6.3 Net Present Value, lines 413-415: The net present value calculations are provided for both equity and total investments, and represent the values of the cash flows the utility will generate, discounted at the cost of equity (cell D427) less the original equity investment (cell E175).

A positive net present value would indicate a potential for privatization of the utility.

Uniform equivalent cost is computed by using the total capital invested (all debt plus equity). This figure is divided by the present value of an annuity figure for the weighted cost of capital figure. (We used the closest approximation available from our present value tables.)

● 7.1 Cost of Components, lines 424-428: Cost of debt is the current cost of borrowing when considering new investments. For a municipal, that cost would be the interest paid on a bond issue,

adjusted for issuing expenses. We assume that the bonds would be tax-free. The after tax default value for both municipalities and firms is 0.06 since municipal interest is not subject to federal tax, but interest on private debt must be adjusted for the federal tax effect; thus, multiply interest rate by (1.0 minus tax rate).

Cost of preferred stock is the dividend paid divided by the issue proceeds. We have assumed a \$9 dividend and issue proceeds of \$100.

Cost of equity is computed using a financial formula based upon the capital asset pricing model. An alternative approach, which assumes a constant growth pattern, gives a much smaller required return on equity. The conservative approach was taken, giving a default value of 11.6 percent.

● 7.2 Weighted Average Costs, lines 424-427: We have used the book values of debt and equity for the first year to determine market values of the components. Proportions are the value of each component divided by the total value of all components.

The After Tax Cost of each component is multiplied by that component's proportion to obtain a weighted cost for the component.

The weighted cost of each component is summed to provide a Weighted Cost of Capital (WCC). The default value varies, but is approximately 8 percent. This value, the WCC, is used as the discount value when computing net present value of the firm, debt plus equity.

\* - - - \* - - - \* - - - \* - - - \* - - - \* - - - \* - - - \*

*A sample copy of a PC-FINPACK generated spreadsheet is on the next page.*

*We hope PC-FINPACK proves to be helpful in your financial analysis of water-supply and -disposal facilities and, perhaps, other kinds of projects when appropriate multipliers become available.*

\* - - - \* - - - \* - - - \* - - - \* - - - \* - - - \* - - - \*

*SAMPLE PC-FINPACK SPREADSHEET*

Data Base A: Private Water Supply, 19XX - 19XX+10  
WRDIDM. WEST

NOTES: Column D will be deleted in final worksheet. Currently, we have small, medium, and large population-categories.

A 1.6	8
Type of Project	9
Municipal Water Supply	10
Municipal Waste Water Disposal	
Private Water Supply	12 XXX
Private Waste Water Disposal	

Users must manually select the appropriate file from the disks provided at this time--WatSupA to WatSupRR, based upon size, region, municipal or private, and water supply or waste water disposal categories.

Population	14
Less than 500	15
501 to 3,300	16
3,301 to 25,000	17
25001 to 50,000	18
Greater than 50,000	19
	20

To directly to help-screen A 1.10 and review the default values. Enter the number of hook-ups expected into cells E40-E42, usage per hook-up into cells I40-I42, and rate per 1,000 gallons into cells C45-C47.

Region:	22
East	23
Middle	24
West	25

Additional changes can be made to the income statement and balance sheet in column 8 if the default values are not appropriate. Save your default file under a new file name before changing it.

A 1.7  
Source of Water Supply  
Surface  
Well  
Other

You can view help-screens by pressing Tab-key twice, or pressing Alt-key and H-key simultaneously. Press Shift-key and Tab-key twice to return to column A. You may have to page up or down to find the lines you want.

A 1.10 33  
The default values for this project will be based upon:

Telephone Dr. Edward M. Pierce at (305) 472-1048 or (305) 475-7684, if you have problems, or need information on special considerations such as treatment or capital investment multipliers or problems with the model. Data base questions should be referred to Dr. G. Richard Drees, (616) 251-4566. Model-access and programming questions should be referred to Mr. Bill Clark, Engineer Institute for Water Resources, (703) 355-2240.

The default values for this project will be Revised			
Inflation rate	36	0.000	
Usage growth rate	37	0.050	Your multiplier is 1.050
NUMBER OF HOOK-UPS			
USAGE PER HOOK-UP	Default	Revised	Default
Residential	136.1	40	136.1
Commercial	592.0	41	592.0
Industrial	11881.0	42	11881.0

(3.5 people per hook-up, gallons in 000s.)  
Total Usage :

RATE PER 1,000 GAL.	Revenue per Customer	
	Default	Revised
Residential	2,320	315.7
Commercial	1,710	1012.3
Industrial	1,880	22336.2
Weighted Average	2,157	

Revenue:		
Default	Revised	
12613	12613	0.725
4303	4303	0.248
469	469	0.027
	<u>17385.3</u>	<u>1.000</u>

A 1.11	49
Special Considerations:	50
Treatment cost multiplier	51 See line 41, help screen.
Supplemental capital investm	52 "

Financing costs:	54	Default	Revised
Short-term debt	55	0.100	0.100
Intermediate-term debt	56	0.100	0.100
Long-term debt	57	0.100	0.100
Preferred Stock	58	0.090	0.090
Equity	59	0.116	0.116

INCOME AND EXPENSES, PRIVATE WATER SUPPLY, MEDIUM, WEST (Dollars in thousands)

Multiplier  
= 6th power

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OPERATING EXPENSES		73											
		74											
Employee Salaries	0.000	75	3.0	0.0	0.0	0.0	0.0	0.0	0.0				
Soc. Sec. Benefits	0.000	76	3.0	0.0	0.0	0.0	0.0	0.0	0.0				
Fringe Benefits	0.000	77	9.0	0.0	0.0	0.0	0.0	0.0	0.0				
Heat-Light-Power	0.000	78	3.0	0.0	0.0	0.0	0.0	0.0	0.0				
Supplies-Materials	0.000	79	3.0	0.0	0.0	0.0	0.0	0.0	0.0				
Maintenance	0.000	80	9.0	0.0	0.0	0.0	0.0	0.0	0.0				
Other	0.722	81	8466.6	1.050	8890.0	1.050	9334.5	1.050	9803.2	1.340	13134.5	% of sal	7110.567

VARIABLE EXPENSES	0.722	82	83	8466.6	1.050	8890.0	1.050	9334.5	1.050	9801.2	1.340	13136.5	Summed
Amortization	0.000	85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Capacity
Depreciation	0.111	86	1303.9	1.000	1303.9	1.000	1303.9	1.000	1303.9	1.000	1303.9	1303.9	adequate
Insurance	0.000	87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7110.087
Professional Fees	0.000	88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other (Taxes)	0.167	89	1954.1	1.000	1954.1	1.000	1954.1	1.000	1954.1	1.55	3031.5	Increased	

FIXED EXPENSES	0.276	91	3258.0	1.000	3258.0	1.000	3258.0	1.000	3258.0	1.331	4335.4	Summed
		92										
TOTAL OPER. EXPENSES	1.000	93	11724.6	1.036	12144.0	1.037	12592.5	1.037	13059.2	1.338	17469.9	083+091

OPERATING EARNINGS (LOSSES)	94	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	95	5660.7	1.079	5106.6	1.077	5574.8	1.075	7066.5	1.344	3500.4	e71-e93
	96	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
NON-OPERATING REVENUES (EXPENSES)	98	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Interest Income	99	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----
Other Income	100	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----
Sale Fixed Assets	101	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----
Interest Expense	102	0.096	-----	-3695.4	-----	-3695.4	-----	-3695.4	-----	-3695.4	-----
Other	103	103	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----
	104	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
NET NON-OPERATING EARNINGS	105	-3695.4	-----	-3695.4	-----	-3695.4	-----	-3695.4	-----	-3695.4	Debt inte
	106	-----	-----	-----	-----	-----	-----	-----	-----	-----	when disc
NET EARNINGS	107	1965.3	-----	2411.2	-----	2879.5	-----	3371.1	-----	5805.0	-----
Tax	108	0.400	0.045	786.1	1.000	964.5	1.000	1151.8	-----	1340.4	e71*.136
	109	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
PROFIT AFTER TAX	110	0.068	-----	1446.7	-----	1727.7	-----	2022.7	-----	3483.0	-----
Preferred Stock Dividends	111	-----	-----	-76.7	-----	-76.7	-----	-76.7	-----	-76.7	Not meani
Common Dividends	112	-----	-----	-471.7	-----	-578.7	-----	-691.1	-----	-1393.2	e110*.04
Adjustments	113	-----	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----
Total to Retained Earnings	114	3.209	-----	630.8	-----	791.3	-----	959.9	-----	1136.9	2013.1 Summed
	115	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
CASE COMPUTATIONS	116	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Cash BOY (Begin. of Yr.)	117	-----	-----	2557.8	1.053	2592.4	1.050	2827.0	1.050	2968.4	1.340
Cash BOY (End of Yr.)	118	-----	-----	2692.4	-----	2827.0	-----	2968.4	-----	3116.8	4176.8
Cash Avail. for Withdrawal	119	-----	-----	57.3	-----	121.2	-----	127.2	-----	133.6	179.0
	120	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
BALANCE SHEET. PRIVATE WATER SUPPLY, MEDIUM, WEST (Dollars in thousands)	122	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
CURRENT ASSETS	123	1992	-----	1993	-----	1994	-----	1995	-----	2001	REFERENCE
Cash (Line 118)	124	0.040	2692.4	1.050	2827.0	1.050	2968.4	1.050	3116.8	1.340	4176.8
Accounts Receivable	125	-----	16.4	-----	1.0	-----	1.0	-----	1.0	-----	1.0
Due From Other Funds	126	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Due from Other Governments	127	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Inventory, at cost	128	-----	16.4	-----	1.0	-----	1.0	-----	1.0	-----	1.0
Other CA	129	0.032	2147.9	1.050	2255.3	1.050	2368.0	1.050	2486.4	1.340	3332.1
	130	-----	-----	-----	-----	-----	-----	-----	-----	-----	+e148*.1
Total, Curr. Asset	131	0.072	4873.2	-----	5084.3	-----	5338.4	-----	5605.3	-----	7510.9
	132	-----	-----	-----	-----	-----	-----	-----	-----	-----	Summed
RESTRICTED ASSETS	133	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Investments	134	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
AR--Contributed Capital	135	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
	136	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tot. Rest. Assets	137	0.000	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
	138	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
FIXED ASSETS	139	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Plant & Equipment	140	-----	55531.3	-----	55531.3	-----	55531.3	-----	55531.3	-----	55531.3
Less Depreciation	141	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Land	142	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Construction In Progress	143	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
	144	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tot. Fixed Assets	145	0.825	55531.3	-----	55531.3	-----	55531.3	-----	55531.3	-----	55531.3
Other Assets	146	0.103	6906.2	1.050	7251.5	1.050	7614.0	1.050	7994.7	1.340	10713.7
	147	-----	-----	-----	-----	-----	-----	-----	-----	-----	Add amort
COMPUTED TOT. ASSETS-1ST YR	148	-----	67310.6	-----	67867.1	-----	68403.8	-----	69131.3	-----	73755.9
ASSETS MINUS LIABILITIES	149	-----	0.0	-----	-0.0	-----	0.0	-----	0.0	-----	0.0
SUM OF ASSET-ELEMENTS-CHECK	150	-----	67310.6	-----	67867.1	-----	68403.8	-----	69131.3	-----	73755.9
LIABILITIES AND EQUITY	151	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
CURRENT LIABILITIES	152	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Accounts Payable	153	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Accrued Expenses	154	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Short Term Debt	155	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Current Part. LT Debt	156	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Due to Other Funds	157	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Other	158	0.099	6638.8	1.050	6403.9	1.050	6060.7	1.050	5571.4	1.340	8182.9
	159	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Curr. Liabilities	160	-----	6638.8	-----	6403.9	-----	6060.7	-----	5571.4	-----	8182.9
	161	-----	-----	-----	-----	-----	-----	-----	-----	-----	Summed
PAYABLE FROM RESTRICTED ASSETS	162	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Contracts Payable	163	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Deposits	164	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	165	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Total, Payable from R.A.	166	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
	167	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
ADVANCES FROM OTHER FUNDS	168	-----	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
	169	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LONG TERM LIABILITIES	170	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Intermediate-Term De	171	0.236	15885.3	-----	15885.3	-----	15885.3	-----	15885.3	-----	15885.3
Long Term Debt	172	0.313	21068.2	-----	21068.2	-----	21068.2	-----	21068.2	-----	21068.2
	173	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EQUITY	174	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Preferred Stock	175	0.019	1278.9	-----	1278.9	-----	1278.9	-----	1278.9	-----	1278.9
Common Stock	176	0.324	21808.6	-----	21808.6	-----	21808.6	-----	21808.6	-----	21808.6
Contributed Capital	177	0.000	0.0	-----	0.0	-----	0.0	-----	0.0	-----	0.0
Retained Earnings	178	0.009	630.8	-----	1422.1	-----	2382.0	-----	3518.8	-----	5531.9
	179	-----	-----	-----	-----	-----	-----	-----	-----	-----	0
Total Equity	180	0.352	23718.3	-----	24509.6	-----	25469.5	-----	26606.4	-----	28619.4
	181	-----	-----	-----	-----	-----	-----	-----	-----	-----	Summed
Total Liabil. & Equity	182	1.000	67310.6	-----	67867.1	-----	68403.8	-----	69131.3	-----	73755.9
	183	-----	-----	-----	-----	-----	-----	-----	-----	-----	RE summed
	184	-----	-----	-----	-----	-----	-----	-----	-----	-----	for 96 to
NORMALIZED INCOME STATEMENTS, PRIVATE WATER SUPPLY, MEDIUM, WEST	185	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
OPERATING REVENUES	186	1.000	-----	1.000	-----	1.000	-----	1.000	-----	1.000	Base for
Service Charges	187	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

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Other Operating Income	187	0.000	0.000	0.000	0.000	0.000 expenses
OPERATING EXPENSES	188					
Employee Salaries	189					
Soc. Sec. Benefits	190	0.000	0.000	0.000	0.000	0.000
Fringe Benefits	191	0.000	0.000	0.000	0.000	0.000
Heat-Light-Power	192	0.000	0.000	0.000	0.000	0.000
Supplies, Materials	193	0.000	0.000	0.000	0.000	0.000
Maintenance	194	0.000	0.000	0.000	0.000	0.000
Other	195	0.000	0.000	0.000	0.000	0.000
FIXED EXPENSES	196	0.722	0.732	0.741	0.751	0.752
Amortization	197					
Depreciation	198	0.000	0.000	0.000	0.000	0.000
Insurance	199	0.111	0.107	0.104	0.100	0.075
Professional Fees	200	0.000	0.000	0.000	0.000	0.000
Other	201	0.000	0.000	0.000	0.000	0.000
	202	0.167	0.161	0.155	0.150	0.174
OPERATING EARNINGS (LOSSES)	203	-----	-----	-----	-----	-----
	204	0.326	0.335	0.343	0.351	0.352
NON-OPERATING REVENUES (EXPENSES)	205					
Interest Income	206	0.000	0.000	0.000	0.000	0.000
Other Income	207	0.000	0.000	0.000	0.000	0.000
Sale Fixed assets	208	0.000	0.000	0.000	0.000	0.000
Interest Expense	209	-0.213	-0.202	-0.193	-0.184	-0.137
Other	210	0.000	0.000	0.000	0.000	0.000
NET NON-OPERATING EARNINGS	211					
Tax	212	0.045	0.053	0.060	0.067	0.086
PROFIT AFTER TAX (%Reven)	213	-----	-----	-----	-----	-----
Preferred Stock Dividends	214	0.068	0.079	0.090	0.101	0.129
Common Dividends	215	0.004	0.004	-0.004	-0.004	-0.003
Adjustments	216	0.027	0.032	0.036	0.040	0.052
To Retained Earnings	217	0.000	0.000	0.000	0.000	0.000
	218	0.036	0.043	0.050	0.056	0.075
	219					
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NORMALIZED BALANCE SHEET, PRIVATE WATER SUPPLY, MEDIUM, WEST						
CURRENT ASSETS	241					
Cash (E400, 1st Year)	242	1992	1993	1994	1995	2001 REFERENCE
Accounts Receivable	243	0.040	0.042	0.043	0.045	0.057
Due From Other Funds	244	0.000	0.000	0.000	0.000	0.000
Due from Due Other Funds	245	0.000	0.000	0.000	0.000	0.000
Inventory, at cost	246	0.000	0.000	0.000	0.000	0.000
Prepaid Expenses	247	0.032	0.033	0.035	0.036	0.045
Total, Current Assets	248	0.072	0.075	0.078	0.081	0.102 Summed
RESTRICTED ASSETS	249					
Investments	250	0.000	0.000	0.000	0.000	0.000
AR--Contributed Capital	251	0.000	0.000	0.000	0.000	0.000
Total, Restricted Assets	252	0.000	0.000	0.000	0.000	0.000 summed
FIXED ASSETS	253					
P&E	254	0.825	0.818	0.811	0.803	0.753
Less Depreciation	255	0.000	0.000	0.000	0.000	0.000
Land	256	0.000	0.000	0.000	0.000	0.000
Construction In Progress	257	0.000	0.000	0.000	0.000	0.000
Total, Fixed Assets	258	0.825	0.818	0.811	0.803	0.753 Summed
Other Assets	259	0.103	0.107	0.111	0.116	0.145
Total Assets	260	-----	-----	-----	-----	-----
	261	1.000	1.000	1.000	1.000	1.000 Summed
LIABILITIES AND EQUITY	262					
CURRENT LIABILITIES	263					
Accounts Payable	264	0.00	0.00	0.00	0.00	0.00
Accrued Expenses	265	0.00	0.00	0.00	0.00	0.00
Short Term Debt	266	0.00	0.00	0.00	0.00	0.00
Current Port, LT Debt	267	0.00	0.00	0.00	0.00	0.00
Due to Other Funds	268	0.00	0.00	0.00	0.00	0.00
Other	269	0.10	0.09	0.09	0.08	0.11 +N150/N5

Total Curr. Liabilities	280	2.10	0.09	0.09	0.08	0.11
PAYABLE FROM RESTRICTED ASSETS						
Contracts Payable	282	2.00	0.00	0.00	0.00	0.00
Deposits	283	2.00	0.00	0.00	0.00	0.00
	284					
Total, Payable from R.A.	285	2.00	0.00	0.00	0.00	0.00
	286					
ADVANCES FROM OTHER FUNDS	287	2.00	0.00	0.00	0.00	0.00
	288					
LONG TERM LIABILITIES						
Intermediate-Term Debt	289		0.23	0.23	0.23	0.22
Long-Term Debt	290	2.24	0.31	0.31	0.30	0.29
	291	2.31				
EQUITY						
Preferred Stock	292		0.02	0.02	0.02	0.02
Common Stock	293	2.02	0.32	0.32	0.32	0.30
Contributed Capital	294	0.32	0.00	0.00	0.00	0.00
Retained Earnings	295	0.00	0.02	0.03	0.05	0.08
	296	0.01				
	297					
Total Equity	298	2.35	0.36	0.37	0.38	0.39 Summed
	299	2.35	0.36	0.37	0.38	0.39
Total Liabilities & Equity	300	1.0	1.0	1.0	1.0	1.0 Summed
	301					
RATIO ANALYSIS, PRIVATE WATER SUPPLY, MEDIUM, WEST						
	303	1992	1993	1994	1995	2001
LIQUIDITY						
Acid Test	304					
Quick	305	0.426	0.4	0.5	0.6	0.5
Current	306	0.408	0.4	0.5	0.6	0.5
AR/Op Inc	307	0.734	0.8	0.9	1.0	0.9
	308	2.0	0.0	0.0	0.0	0.0
	309					
	310					
ACTIVITY						
Accounts Receivable TO	311					
Days Outstanding	312	17385.3	18254.6	19167.3	20125.6	26970.3
Inventory Turnover	313	1.0	0.0	0.0	0.0	0.0
Asset Turnover	314	nm	nm	nm	nm	nm
One/Asset TO	315	0.258	0.3	0.3	0.3	0.4
	316	1.872				
COVERAGE AND LEVERAGE						
Interest Coverage	317					
Interest + Dividends	318	1.745	0.7	0.8	0.9	1.6
Fixed Finance Payments	319	1.519	0.6	0.6	0.7	1.1
I,LT Debt/Assets	320	1.272	0.6	0.6	0.7	1.1 No curren
Equity/Assets	321	0.55	0.5	0.5	0.5	0.5
	322	0.35	0.4	0.4	0.4	0.4
	323					
PROFITABILITY						
Margin	324					
Return on Assets	325	0.113	0.5	0.5	0.5	0.5
Return on Equity	326	0.029	0.0	0.0	0.0	0.1
Cash Flow on Assets	327	0.083	0.1	0.1	0.1	0.2
	328	0.103	0.1	0.1	0.1	0.1
	329					
GROWTH (Percent)						
Revenue	330					
Cash Flow	331	0.050	0.050	0.050	0.050	0.050
Earnings	332	na	na	na	na	na
Dividends	333	na	na	na	na	na
	334	na	na	na	na	na
	335					
	336					
OPERATING STATISTICS						
Peak Load	337					
Capacity at Peak	338					
	339					
	340					
SENSITIVITY ANALYSIS RATES (WEIGHTED AVERAGE)						
Rates (Weighted Average)	341					
Usage	342	2.2	2.2	2.2	2.2	2.2
Customers	343	8202644	8202644	8202644	8202644	8202644
	344	44230	44230	44230	44230	44230
	345					
Revenues	346					
Personnel Costs	347	17385	18255	19167	20126	26970 Dollars 1
Other Variable Expenses	348	0	0	0	0	0 not avail
Depreciat'n & Amortizat'n	349	8467	8890	9334	9801	13135
Other Fixed Expenses	350	1304	1304	1304	1304	1304
	351	1954	1954	1954	1954	3031
	352					
Total Assets	353					
Plant and Equipment	354	67311	67867	68484	69131	73756
(Operating)	355	55531	55531	55531	55531	55531
Debt (IT and LT)	356					
Equity (Equivalent)	357	36954	36954	36954	36954	36954
	358	23718	24510	25469	26606	28619
	359					
	360					
STATEMENT OF CASH FLOWS, PRIVATE WATER SUPPLY, MEDIUM, WEST (Dollars in Thousands)						
	362	1992	1993	1994	1995	2001
CASH FLOWS FROM OPERATING ACTIVITIES						
Received from Customers	363	17385.3	18254.6	19167.3	20125.6	26970.3 Summed
Payments	364	-11724.6	-12148.0	-12592.5	-13059.2	-17469.9 -M93
Add Back Depreciation	365	1303.9	1303.9	1303.9	1303.9	1303.9
Net Operating Cash Flow	366	6964.5	7410.5	7878.7	8370.3	10804.3 SUM(M364 Incl depr
	367					
Change, CA, less cash	368	0.0	76.5	112.8	118.4	845.6
Change Current Liabilities	369	0.0	-234.9	-343.2	-489.3	-655.8
Taxes	370	-786.1	-964.5	-1151.8	-1348.4	-1807.0
Cash Flow, Operat. Accts.	371	6178.4	6287.6	6496.5	6651.0	9187.1 +M367+M36
	372					

373										In year 2
CASH FLOWS FROM NON-CAPITAL FINANCING ACTIVITIES										
Advances to Other Funds	375	0.0		0.0		0.0		0.0		
Repayment to Other Funds	376	0.0		0.0		0.0		0.0		
	377									
Total, C.F. From Non-Cap	378	0.0		0.0		0.0		0.0		0.0 +M375+M37
	379									
CASH FLOWS FROM CAPITAL ACCOUNTS										
Change in Fixed Assets	381	0.0		0.0		0.0		0.0		0.0 Assume c
Change in Other Assets	382	0.0		345.3		362.6		380.7		2719.0 for expan
Capital Grants	383	0.0		0.0		0.0		0.0		0.0 minor add
Retirement, LT Debt	384	0.0		0.0		0.0		0.0		0.0
New debt	385	0.0		0.0		0.0		0.0		0.0
Interest on LT Debt	386	-3695.4		-3695.4		-3695.4		-3695.4		-3695.4 +M102
Dividends	387	-471.7		-578.7		-691.1		-809.1		-1393.2 +110+.04
Contributed Capital	388	0.0		0.0		0.0		0.0		0.0 Ave RE, 6
Depreciation, Amortization	389	1303.9		1303.9		1303.9		1303.9		1303.9 +M85+M86
Total, C.F. From Cap Accts	390	-2863.1		-2624.8		-2720.0		-2819.8		-1065.7 Summed
	391									
CASH FLOWS FROM INVESTMENTS										
Investment Interest	393	0.0		0.0		0.0		0.0		0.0
Net purchase Securities	394	0.0		0.0		0.0		0.0		0.0
	395									
NET CASH FLOW	396	3315.3		3662.8		3776.6		3831.2		8121.4 +M372+M37
	397									
CASH, BEGINNING OF YEAR	398	2557.8		2692.4		2827.0		2968.4		3977.9
CASH, Avail. for Withdrawal	399	67.3		121.2		127.2		133.6		179.0
CASH, EOY Includes Line 399	400	2692.4		2827.0		2968.4		3116.8		4176.8
	401									
	402									
PAYBACK	403	0	1	2	3	4	5-10	Beyond		
Investment	404	-67311	57311	59828	51891	43728	35393	-43867.1		
Cash Flow to Capital	405		7482	7937	8163	8336	79260	160981		
Remaining Investment	406		59828	51891	43728	35393	-43867	-204848		
	407									
INTERNAL RATE OF RETURN										
Cash Flow	408	Assume perpetuity after year ten.								
IRR	409	-67311	7482	7937	8163	8336	79260	160981		
	410	0.318								
	411									
NET PRESENT VALUE										
Cash Flow	412	0.082	Assume perpetuity after year ten.							
Net Present Value	413	-67311	7482	7937	8163	8336	79260	160981		
	414	104089.1								
	415									
UNIFORM ANNUAL EQUIVALENT COST										
Costd/FVIYA, coc, infin per		5523.5								
	418									
	419									
	420									
	421									
WEIGHTED COST OF CAPITAL:										
Component	BTC	ATC	Mkt Value	Proportion	Cost					
k dit	0.1	0.060	15885	0.3	0.015					
k dlt	0.1	0.060	21068.2	0.3	0.020					
k ps		0.090	1279	0.0	0.002					
k e		0.116	23718	0.4	0.044					
	429									
	430		51951	1.0	0.082					
k e = D/P + g = .04 + .05 =										
Constant growth assumption.										
	433									
k e = RFR + b(R m - RFR) = .06434										
	435				0.116					
	436									
PROJECT SUMMARY: PRIVATE WATER SUPPLY, MEDIUM, WEST--base case										
	438									
Annual revenues for the first and tenth years are:					17385.3		26970.3		+e71	26970.3
Annual cash expenses for the first and tenth years are:					14902.2		22183.4		+E93-E85-E86-E105+	
	441								+M93-M85-M86-M105+	
Payback would occur in year:										
Internal rate of return on this project is:					0.318	(Probably a minus .003, but near zero)			+E410	
Net present value of this project is:					104089				+E414	
	445									
Project cash flow would have to equal 5523 each year to cover costs										
and provide for the market required return on equity. (Nearly double current CF).										
(Dollars in thousands)										
(Assuming an infinite project life)										
	450									
Ratio Analysis:	451									
Liquidity position is	453									
Asset turnover is	455									
Profitability is	457									
	458									
Growth rate is	0.050									
	460									
Excess capacity at peak load is (not available).										
	462									
Assume depreciation is reinvested in assets.										
	464									
	465									

ADJUSTED BALANCE SHEET LINES 124 THROUGH 150 FOR FIRST YEAR

	466	
	467	
	468	
	470	
	471	1992
	472	-----
CURRENT ASSETS	473	
Cash (See line 124)	474	2692.4
Accounts Receivable	475	16.4
Due From Other Funds	476	0.0
Due from Other Governments	477	0.0
Inventory, at Cost	478	16.4
Other CA	0.0319 479	2147.9
	480	
Total, Current Assets	481	4873.2
	482	
RESTRICTED ASSETS	483	
Investments	484	0.0
AR--Contributed Capital	485	0.0
	486	
Total, Restricted Assets	487	0.0
	488	
FIXED ASSETS	489	
Plant & Equipment	490	55531.3
Less Depreciation	491	0.0
Land	492	0.0
Construction In Progress	493	0.0
	494	
Total Fixed Assets	495	55531.3
Other Assets	496	6906.2
	497	-----
TOTAL ASSETS, COMPUTED	498	67310.6
Assets-liabilities, 1st year	499	0.0
SUM OF ASSET-ELEMENTS	500	67310.6

LINES 503 THROUGH 519 ARE ADJUSTMENTS ROUTINES FOR LIABILITIES

	501													
	502													
Accounts Payable	503	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accrued Expenses	504	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short Term Debt	505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current Part, LT Debt	506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Due to Other Funds	507	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	508	5990.6	548.1	5290.2	113.7	5604.7	-544.0	5934.9	-1363.5	9293.5	-1110.5			
Contracts Payable	509	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deposits	510	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ADVANCES FROM OTHER FUNDS	511	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intermediate-Term Debt	512	15885.3	0.0	15885.3	0.0	15885.3	0.0	15885.3	0.0	15885.3	0.0	15885.3	0.0	0.0
Long Term Debt	513	21068.2	0.0	21068.2	0.0	21068.2	0.0	21068.2	0.0	21068.2	0.0	21068.2	0.0	0.0
Preferred Stock	514	1278.9	0.0	1278.9	0.0	1278.9	0.0	1278.9	0.0	1278.9	0.0	1278.9	0.0	0.0
Common Stock	515	21808.6	0.0	21808.6	0.0	21808.6	0.0	21808.6	0.0	21808.6	0.0	21808.6	0.0	0.0
Contributed Capital	516	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retained Earnings	517	530.8	0.0	1422.1	0.0	2382.0	0.0	3518.8	0.0	5531.9	0.0			
	518													
Total Liabilities & Equity	519	66662.5	548.1	67753.3	113.7	69027.7	-544.0	70494.8	-1363.5	74866.4	-1110.5			
	520													

UNADJUSTED FIRST YEAR BALANCE SHEET LINES 124 THROUGH 150 --- SEE LINES 474 THROUGH 500

	521	
	522	1992
	523	-----
CURRENT ASSETS	524	
Cash (See line 124)	524	2692.4
Accounts Receivable	525	16.4
Due From Other Funds	526	0.0
Due from Other Governments	527	0.0
Inventory, at Cost	528	16.4
Other CA	0.0319 529	2198.1
	530	
Total, Current Assets	531	4924.2
	532	
RESTRICTED ASSETS	533	
Investments	534	0.0
AR--Contributed Capital	535	0.0
	536	
Total, Restricted Assets	537	0.0
	538	
FIXED ASSETS	539	
Plant & Equipment	540	55531.3
Less Depreciation	541	0.0
Land	542	0.0
Construction In Progress	543	0.0
	544	
Total Fixed Assets	545	55531.3
Other Assets	546	7067.6
	547	-----
TOTAL ASSETS, COMPUTED	548	67310.6
Assets-liabilities, 1st year	549	0.0
SUM OF ASSET-ELEMENTS	550	67523.1

\*\*\*\*\*  
 \*\*\* TO QUICKLY FIND MULTIPLIER CELLS SEE LOOK-UP TABLE AT A671. \*\*\*  
 \*\*\*\*\*  
 CELL E600--THE PREDOMINANT MULTIPLIER

In the first year, the ratio 76737/19820 is equivalent to ("Total Assets" divided by "Total Operating Revenues"). This ratio, which

equals 3.87170 and is known as the predominant multiplier. was determined by analysis of several types of water utilities. In the first year, this ratio (E600) is multiplied by "Total Operating Revenues" (E71) to produce "Computed Total Assets" (E148).

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DESCRIPTIONS OF THE OPERATIONS  
OF MULTIPLIERS ARE IN SAME ROW  
WITH THE ACTUAL MULTIPLIERS.

Col. E  
Multiplier's Operation

SUPPLIES & MATERIALS	568	0.00000 = E568	Computes "Supplies & Materials--Operating Expenses" (E79), when multiplied by "Total Operating Revenues" (E71).
MAINTENANCE--OPER. EXP.	569	0.00000 = E570	Computes "Maintenance--Operating Expenses" (E80), when multiplied by "Total Operating Revenues" (E71).
OTHER--OPER. EXPENSES	571	0.48700 = E572	Computes "Other--Operating Expenses" (E81), when multiplied by "Total Operating Revenues" (E71).
DEPRECIATION--VAR. EXP.	572	0.07500 = E574	Computes "Depreciation--Variable Expenses" (E86), when multiplied by "Total Operating Revenues" (E71).
INSURANCE--VAR. EXP.	573	0.00000 = E576	Computes "Insurance--Variable Expenses" (E87), when multiplied by "Total Operating Revenues" (E71).
PROFESSIONAL FEES--VAR. EXP.	574	0.00000 = E578	Computes "Professional Fees--Variable Expenses" (E88), when multiplied by "Total Operating Revenues" (E71).
OTHER (TAXES)--VAR. EXP.	575	0.11240 = E580	Computes "Other (Taxes)--Variable Expenses" (E89), when multiplied by "Total Operating Revenues" (E71).
OTHER ASSETS	576	0.10500 = E582	Computes "Other Assets" (E546), when multiplied by "Computed Total Assets" (E148).
CASH, END OF YEAR	577	0.04000 = E584	Computes "Cash, End of Year" (E118), when multiplied by "Computed Total Assets" (E148).
CASH, AVAIL. FOR WITHDRAWAL	578	0.90000 = E586	Computes "Cash, Available for Withdrawal" (E119), when multiplied by "Cash, End-Of-Year" (E118) minus "Cash, Beginning-Of-Year" (E117).
EMPLOYEE SALARIES--OPER. EXP.	587	0.00000 = E592	Computes "Employee Salaries--Operating Expenses" (E75), when multiplied by "Total Operating Revenues" (E71).
SOC. SECURITY BENEFITS	588	0.00000 = E594	Computes "Social Security Benefits--Operating Expenses" (E76), when multiplied by "Total Operating Revenues" (E71).
FRINGE BENEFITS--OPER. EXP.	589	0.00000 = E596	Computes "Fringe Benefits--Operating Expenses" (E77), when multiplied by "Total Operating Revenues" (E71).
HEAT, LIGHT & POWER--OPER. EXP.	590	0.00000 = E598	Computes "Heat, Light & Power--Operating Expenses" (E78), when multiplied by "Total Operating Revenues" (E71).
COMPUTER TOTAL ASSETS	591	3.87170 = E600	Computes "Computed Total Assets" (E148), when multiplied by "Total Operating Revenues" (E71).
ACCTS. REC.--CURRENT ASSETS	592	0.00025 = E602	Computes "Accounts Receivable--Current Assets" (E525), when multiplied by "Computed Total Assets" (E148).
DUE FROM OTHER FUNDS--C.A.S.S.	593	0.00000 = E604	Computes "Due From Other Funds--Current Assets" (E526), when multiplied by "Computed Total Assets" (E148).
DUE FROM OTHER GOV'TS.	594	0.00000 = E606	Computes "Due From Other Governments--Current Assets" (E527), when multiplied by "Computed Total Assets" (E148).
INVENTORY AT COST--C. ASSETS	595	0.00025 = E608	Computes "Inventory at Cost--Current Assets" (E528), when multiplied by "Computed Total Assets" (E148).
OTHER--CURRENT ASSETS	596	0.03266 = E610	Computes "Other--Current Assets" (E529), when multiplied by "Computed Total Assets" (E148).
PLANT & EQUIP.--FIXED ASSETS	597	0.82500 = E612	Computes "Plant & Equipment--Fixed Assets" (E540), when multiplied by "Computed Total Assets" (E148).
CONSTRUC. IN PROG.--F. ASSETS	598	0.00000 = E614	Computes "Construction in Progress--Fixed Assets" (E543), when multiplied by "Computed Total Assets" (E148).
OTHER INCOME--NET N/O EARN.	601	0.00000 = E624	Computes "Other Income--Net Non-Operating Earnings" (E100), when multiplied by "Total Operating Revenues" (E71).
OTHER--NET NON-OP. EARNINGS	602	0.00000 = E626	Computes "Other--Net Non-Operating Earnings" (E103), when multiplied by "Total Operating Revenues" (E71).
ACCTS. PAY.--CURR. LIABIL.	603	0.00000 = E632	Computes "Accounts Payable--Current Liabilities" (E153), when multiplied by "Computed Total Assets" (E148).
ACCURED EXP.--CURR. LIABIL.	604	0.00000 = E634	Computes "Accrued Expenses--Current Liabilities" (E154), when multiplied by "Computed Total Assets" (E148).
SHORT-TERM DEBT--C. LIABIL.	605	0.00000 = E636	Computes "Short-Term Debt--Current Liabilities" (E155), when multiplied by "Computed Total Assets" (E148).
CURR. LIABIL. PART OF LT. D.	606	0.00000 = E638	Computes "Current Liabilities Part of Long-Term Debt" (E156), when multiplied by "Computed Total Assets" (E148).
CURR. LIABIL. DUE OTHER FUNDS	607	0.00000 = E640	Computes "Current Liabilities Due to Other Funds" (E157), when multiplied by "Computed Total Assets" (E148).
OTHER CURRENT LIABILITIES	608	0.08900 = E642	Computes "Other Current Liabilities" (E158), when multiplied by "Computed Total Assets" (E148).
CONTRACTS PAY. FROM R. ASSETS	609	0.00000 = E644	Computes "Contracts Payable From Restricted Assets" (E162), when multiplied by "Computed Total Assets" (E148).
DEPOSITS PAY. FROM R. ASSETS	610	0.00000 = E646	Computes "Deposits Payable From Restricted Assets" (E163), when multiplied by "Computed Total Assets" (E148).
ADVANCES FROM OTHER FUNDS	611	0.00000 = E648	Computes "Advances From Other Funds" (E167), when multiplied by "Computed Total Assets" (E148).
INTERMEDIATE-TERM DEBT	612	0.21600 = E650	Computes "Intermediate-Term Debt--Long-Term Liabilities" (E170), when multiplied by "Computed Total Assets" (E148).

PREFERRED STOCK--EQUITY	652	0.01900 = E652	Computes "Preferred Stock--Equity" (E173),
	653		when multiplied by "Computed Total Assets" (E148).
LONG-TERM DEBT	654	0.31300 = E654	Computes "Long-Term Debt" (E171),
	655		when multiplied by "Computed Total Assets" (E148).
COMMON STOCK--EQUITY	656	0.32400 = E656	Computes "Common Stock--Equity" (E174),
	657		when multiplied by "Computed Total Assets" (E148).
CONTRIBUTED CAPITAL--EQUITY	658	0.00000 = E658	Computes "Contributed Capital--Equity" (E175),
	659		when multiplied by "Computed Total Assets" (E148).
	660		
	661		
	662		
	663		
	664		
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	667		
	668		
	669		
	670		

LOOK-UP TABLE FOR LOCATING THE CELL ADDRESSES OF THE MULTIPLIERS

ALPHABETIZED NAMES OF MULTIPLIERS	CELL ADDRESSES OF MULTIPLIERS
ACCUMULATED EXPENSES--CURRENT LIABILITIES	E634
ACCOUNTS PAYABLE--CURRENT LIABILITIES	E632
ACCOUNTS RECEIVABLE--CURRENT ASSETS	E602
ADVANCES FROM OTHER FUNDS	E648
CASH, AVAILABLE FOR WITHDRAWAL	E586
CASH, END OF YEAR	E584
COMMON STOCK--EQUITY	E656
COMPUTED TOTAL ASSETS	E600
CONSTRUCTION IN PROGRESS--FIXED ASSETS	E614
CONTRACTS PAYABLE FROM RESTRICTED ASSETS	E644
CONTRIBUTED CAPITAL--EQUITY	E658
CURRENT LIABILITIES PART OF LONG-TERM DEBT	E638
CURRENT LIABILITIES DUE OTHER FUNDS	E640
DEPOSITS PAYABLE FROM RESTRICTED ASSETS	E646
DEPRECIATION--VARIABLE EXPENSES	E574
DUE FROM OTHER FUNDS--CURRENT ASSETS	E604
DUE FROM OTHER GOVERNMENTS	E606
EMPLOYEE SALARIES--OPERATING EXPENSES	E592
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